DOCUMENT RESUME

ED 246 856 IR 011 185

AUTHOR Gray, Peter J.
TITLE Policy Analysis: A Tool for Setting District Computer Use Policy. Paper and Report Series No. 97.
INSTITUTION Northwest Regional Educational Lab., Portland, OR. Research on Evaluation Program.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE May 84
CONTRACT 400-80-0105
NOTE 29p.
PUB TYPE Guides - Non-Classroom Use (055) -- Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adoption (Ideas); *Change Strategies; *Computer Oriented Programs; *Computers; Decision Making; *Innovation; Planning; Policy; *Policy Formation; School Districts
IDENTIFIERS *Computer Uses in Education

ABSTRACT

This report explores the use of policy analysis as a tool for setting computer use policy in a school district by discussing the steps in the policy formation and implementation processes and outlining how policy analysis methods can contribute to the creation of effective policy. Factors related to the adoption and implementation of innovations are categorized and used as a framework for discussion. The first category, the climate of change, includes external factors such as social pressure and funding, and district or internal factors. The policy context is the second category; it includes the art of policy setting, a definition of a policy, and how to set policy. Discussion of the final category, the change process, covers procedures for clarifying problems, issues, and needs (PINS); question development; data collection, analysis, and synthesis; and identification of alternative policy options and their implications for implementation. Fifteen references are listed. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M. Margaret Rogers

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED246856

No. 97 POLICY ANALYSIS: A TOOL FOR SETTING DISTRICT COMPUTER USE POLICY

PETER J. GRAY

May 1984

Nick L. Smith, Director
Research on Evaluation Program
Northwest Regional Educational Laboratory
300 S.W. Sixth Avenue, Portland, Oregon 97204

IR011185

Published by the Northwest Regional Educational Laboratory, a private nonprofit corporation. The work upon which this publication is based was performed pursuant to Contract No. 400-80-0105 of the National Institute of Education. It does not, however, necessarily reflect the views of that agency.

The information presented in this publication does not necessarily reflect the opinions of the Northwest Regional Educational Laboratory and no endorsement should be inferred.

PREFACE

The Research on Evaluation Program is a Northwest Regional Educational Laboratory project of research, development, testing, and training designed to create new evaluation methodologies for use in education. This document is one of a series of papers and reports produced by program staff, visiting scholars, adjunct scholars, and project collaborators--all members of a cooperative network of colleagues working on the development of new methodologies.

How can policy analysis procedures be used to help school districts set policy on computer use? This report addresses that question by discussing the steps in the policy formation and implementation processes, outlining how policy analysis methods can contribute to the creation of effective policy.

Nick L. Smith, Editor
Paper and Report Series

CONTENTS

	Page
The Climate for Change	1
The Policy Context	5
The Change Process	8
Conclusions	21
References	23

POLICY ANALYSIS: A TOOL FOR SETTING DISTRICT COMPUTER USE POLICY

The purpose of this paper is to explore the use of policy analysis as a tool for setting computer use policy in a school district. There are many circumstances that can facilitate or inhibit the success of a change as extensive as the introduction, or widespread coordinated use of computers. Having sound information to guide decisions in particular situations can be of great benefit. Policy analysis is a powerful tool for providing information to decision-makers involved in such a change as computer use.

Policy analysis fits into a larger change process. Fullan in The Meaning of Educational Change (1982) has, for example, identified a variety of factors related to the adoption and implementation of innovations. The list in Figure 1 is a synthesis of the factors identified by Fullan and other authors. These factors fall under four categories, namely, the climate for change, the policy context, the change process, and other critical elements. These factors constitute a comprehensive set of descriptors regarding change in school districts. At the core of this process is policy setting.

The Climate for Change

Factors influencing the climate for change are found both external and internal to a school district as an organization.

Figure 1

Factors Influencing the Adoption and Implementation of Change Such as the Wide-Spread Coordinated Use of Computers in School Districts

I. The Climate for Change

- A. External factors
- B. District factors

II. The Policy Context

- A. The art of policy setting
- B. What is policy
- C. How to set policy

III. Policy Analysis and the Change Process

- A. Clarifying problems - issues - needs (PINs)
- B. Generating adoption alternatives
- C. Planning implementation
- D. Critical elements

    1. Administrative support and involvement
    2. Staff participation
    3. Timelines and evaluation systems
    4. Board and community involvement
    5. Outside assistance

External Factors Include Social Pressure and Funding

Social pressure may be in the form of local parent requests or federal or state legislation. The reason for considering external factors is that they represent a gauge of the importance of a change, and indirectly suggest the general likelihood of its adoption. Microcomputer use is a striking example of a change that has both wide-spread and deeply felt importance. Together with the subject areas of science and mathematics, computer technology is part of student and teacher related mandates in virtually every state in the nation. Such mandates focus on teacher preparation and inservice, and student competency and graduation requirements (Education Commission of the States,

1983, Southeastern Regional Council for Educational Improvement, 1983, Christen, K. and Gladstone, P., 1983). Some of these mandates take the form of legislation. Others are rules and regulations. In either case, they provide evidence of considerable social pressure external to school districts. Individual parents and parent groups also exert considerable pressure on school districts. Such a strong set of pressures suggests that the use of microcomputers in schools will occur in one form or another. The question is, how will it be managed?

Funding is also a form of pressure. So is the availability of free or very low cost machines. These can lead districts in certain directions. Considering such sources as the California "Kids Can't Wait" program sponsored by Apple Computer, the IBM sponsored teacher resource centers, the availability of Chapter 1, Chapter 2, and other federal and state funds for purchasing computers and the special educational discounts offered to schools, it is clear that there are considerable opportunities to get microcomputers. Parents' groups are also willing to purchase machines. Such a situation is both a benefit to the rapid computerization of a district and a threat to the control over the spread and use of microcomputers. Again, we see that, in the case of computers, there is "funding" available from such diverse sources that their appearance in schools is assured.

By being aware of external pressure accumulating from several sources, district administrators can sense topics that have the potential for becoming policy issues. District computer use is clearly one such topic.

Internal Factors Can Help to Direct and Control an Innovation Like Computer Use

Fullan (1982) notes two contrasting district orientations which have different effects on the adoption and implementation of change. One is a problem-solving orientation and the other is a bureaucratic or opportunistic orientation (Fullan, p. 50).

Bureaucratically-oriented districts tend to adopt innovations based on such criteria as the extent to which they provide

- bureaucratic safety (i.e., add resources without requiring behavioral change)
- response to external pressure (in which "adoption" may ease the pressure)
- approval of peer elites (in the absence of clearly defined output criteria whatever is popular among leading professional peers is sometimes the determining criterion).

(Fullan, p. 50)

School districts that are problem-oriented are characterized as

- having identified local needs
- are dissatisfied with existing performance
- seek out resources
- respond enthusiastically to opportunites.

(Fullan, p. 50)

Some research has shown that there is high correlation between problem-orientation and the total number of adoptions made by a district (Daft and Becker, 1978, cited in Fullan, p. 50).

Another aspect of the internal climate for change concerns the past history of change in the district. For example, whether the district is known among its staff and constituency for a problem-solving or bureaucratic approach to past change will have an effect on their reaction to future efforts.

In summary, there is considerable positive pressure for computer use from within and outside of most districts. Social pressure exists nationally, within the state and locally. Funds are typically available from sources both inside and outside of the district.

By looking at factors involved in the adoption/implementation process, we can see how a district can build a positive image regarding change by pursuing a problem-solving approach to the use of microcomputers. An important focus of the problem-solving process, when one is addressing as extensive a change as computer use, is the establishment of guiding policy.

The Policy Context

Typically districts have policies on many topics such as energy conservation, student discipline, and field trips, but none on computer use. Because of the wide-spread internal and external pressure for computer use and its potential wide-spread impact on a district, clearly it should be considered in the context of policy setting.

The Art of Policy Setting

The formulation of policy is clearly an art (House, 1982) and for many boards of education, policy setting is more a matter of muddling through than a controlled and planned process (Lindblom, 1959). This is not to say that habit, intuition and incomplete analysis are invaluable in policy setting. They are, since policy setting is to a great extent a political process and one in which it is not possible to specify all decision alternatives nor to predict all possible consequences of each alternative (Vaupel, 1977).

The research on effective schools and the implementation of innovations show, however, that having clear policy that has been arrived at through a systematic process enhances the chances that the innovation will be successful. The point of view implicit in this paper is that any policy setting process should provide many opportunities for the intuition and experience of board members, the superintendent, and others to come to bear on a given issue.

It is clear that no process can be exhaustive in terms of the issues analyzed or the implications identified. An important ingredient in policy setting is the detection, assessment and clarification of issues in order to ensure that, to the extent possible, time is spent on the most important issues. This is where experience, intuition, and limited analysis come in. That is, coupled with experience and intuition limited analysis can help to detect, assess, and clarify issues and their reasonably forseeable implications. "The art of choosing problems that are

theoretically significant and feasible to investigate is a matter of experience and talent rather than of formal procedures" (MacRae, 1979, p. 17).

The need to set policy typically results from "a new problem or a deviation from the presently institutionalized way of doing things." (House, 1982, p. 44). For some school districts where little or no computer facilities currently exist microcomputer technology represents an entirely new problem. Other districts which have a long history of using internal or external data processing facilities are currently faced with the proliferation of microcomputers for both instruction and administration. In these cases the district-wide use of microcomputers represents a strikingly new factor for administrators to consider. In either case, there are important issues that should be addressed at the policy level.

What is a Policy?

Studies of planned change, the implementation of innovation, and organizational development, as well as those concerning effective schooling, document the importance of setting guiding principles, overarching goals, or policy. Hall and Hord (n.d.) in describing the levels and sublevels of successful interventions define policy as follows:

> A policy is a rule or guideline that reflects or directs the procedures, decisions and actions of an organization and the individuals within it.
> (Figure 1, p. 1)

In other words, since policies address new problems or deviations from existing policies, they are the basis for directing changes in organizational and individual habits. In fact, a policy has also been defined as "an attempt to clarify and control the future of human events" (Wolfe, 1982, p. 48).

How to Set Policy

As noted by Wolfe, "[p]olicy making is not a logical, intellectual, problem-solving or decision-making process. Policy making is a social process" (p. 44). Others have called it a political process. But, "[t]he process, fortunately, can be managed" (The Educational Policies Service, 1975, p. 9). The following are the steps which can be used to manage the policy making process (based on Wolfe, 1982, and The Educational Policies Services, 1975):

1. A PIN (problem-issue-need) emerges, e.g., a group of parents claim that students are not being given adequate computer education

2. A policy analysis is conducted, e.g., a study is commissioned to assess the current situation and to project the costs, staffing, and necessary rules and regulations for a range of options for providing improved computer education

3. The board discusses the elements of each option, e.g., the implications of a K-12 computer literacy program vs an elementary level computer assisted instructional program vs a high school computer based job preparation program are considered

4. A draft policy covering the option(s) chosen is presented to the board for approval or revision, e.g., the combination of a special education computer assisted instruction program with a upper elementary and junior high computer literacy program will be the main stay of the computer education offering, however, each high school department will incorporate microcomputer technology as is appropriate

5. Public review of the policy is scheduled, e.g., students, parents, teachers, and the community at large are given an opportunity to present their views of the extent to which the policy represents their idea of computer education

6. A decision is made to adopt or revise the draft policy, e.g., in response to input the board decides to begin computer literacy earlier and to specify a strong link with local businesses and industry as part of the high school component

7. The administration is charged with (1) policy implementation and (2) the evaluation of policy impact, e.g., the administration through its curriculum and evaluation units carries out the implementation and evaluation of the computer education program.

These steps represent more of a cycle than a linear, one time process since as a result of the evaluation of policy impact a new PIN may emerge or at any rate the need for revisions will become evident over time.

The Change Process

Change is a process and not an event (Hall and Hord, n.d.). In order for it to be a managed process, a systemic framework must be used for planning change. Since change in the case of such an extensive innovation as computer use has district-wide implications, it should be seen in the context of policy setting. Policy analysis is the process by which information is provided to decision makers, step two of the policy setting process described earlier. The policy analysis process begins with the clarification of the problem-issue-need (PIN) that is stimulating the change. It then moves through various steps to the generation of adoption alternatives and to implementation planning.

The clarification of the underlying PIN will help to bring into focus its complexity. With very complex changes like computer use, a number of facits emerge, each warranting separate consideration.

The adoption phase sets the direction or content of change (Fullan, 1983, p. 53). The adoption phase "can generate meaning or confusion, commitment or alienation, or simply ignorance on the part of participants and others to be affected by the change" (Fullan, p. 53).

Implementation is really a process of further clarification, and the discovery of the meaning of the change on the part of those who are to put it into practice. Therefore, it is important to remember that adoption, whether it is by one person or a representative committee, will result only in a solution meaningful to those involved in creating it. Steps must be included in implementation planning to give practitioners

(including students) a chance to develop their own meaning. The important questions here are, "What is the relationship between the adoption process and subsequent implementation?" and, "What other factors emerge during implementation which determine whether change in practice occurs?" (Fullan, p. 53).

In this section the major topic is the role of policy analysis in clarifying the PINs related to computer use and generating adoption alternatives and implementation plans. In discussing these topics, their relationships, and the influence of such factors as administrator support and involvement, staff participation, and the other critical elements (shown as part of the list of factors in Figure 1) will be explained as is appropriate.

The Role of Policy Analysis

The above sequence of events is like that suggested by any structured planning process. It is called policy analysis here because it is intended to facilitate "the choice of the best policy among a set of alternatives with the aid of reason and evidence" (McRae, 1979, p. 17). This, in essence, is the role of policy analysis as intended in this paper.

> Policy analysis is defined as a generic research activity within a practical context intended to guide the systematic identification of reasonable alternative policy options and their implications relative to particular problems, issues, needs.

The stages of policy analysis are similar to those one would go through in any research project. They include:

1. PIN clarification
2. Question development
3. Data collection, analysis and synthesis
4. Identification of alternative policy options and their implications

What makes them special here is the focus on problems, issues, and needs (PINs) for the purpose of formulating policy options. As with other research, policy analysis should be designed and conducted in a way that results, to the greatest

extent possible, in valid and reliable findings. Given the typical time and resource constraints imposed on policy analyses, and the near impossibility of identifying all of the options and their implications, the success of a given policy analysis has to be judged in pragmatic terms, that is, the extent to which it was included in the "stream of information" used to make a decision. As Quade notes, "Policy analysis seeks to improve decision making in a particular situation" (Quade, 1977, p. 22). It does so by combining "practical experience and common sense" with "formal, analytical techniques" (House, 1982, p. 44).

Clarifying Problem-Issue-Needs (PINs)

Many times groups faced with a problem-issue-need (PIN) which seems to demand change fail to clarify the PIN before generating possible solutions (GDN Newsletter, October 1983). As a result, solutions are accepted or rejected on their own intrinsic merit and not necessarily on their relevance to the problem at hand. By taking the time to clarify the PINs underlying change, one takes the first step in adoption (i.e., the setting of the direction or content of change). This in turn forms the basis for matching the PINs with relevant alternative innovations to be considered for implementation.

PIN clarification is especially important when there are many problems-issues-needs related to a general topic as is the case with "computer use," since there are also many differing perspectives in regard to their definition and relative priority. Hence, there are likely to be different perspectives on the direction or content of change and, subsequently, there are many different possible solutions. To know which one(s) to pursue is not an easy task. The first step in this process is to clarify the PIN under consideration (i.e., computer use).

The right balance of central administration and staff participation is critical in PIN clarification. As Fullan (1982) notes, "[e]ducational adoption never occurs without an advocate, and one of the most powerful is the chief district administrator, with his or her staff, especially in combination with school

board support or mandate" (p. 45). Numerous studies cited by Fullan, "show that the chief district administrator and central office staff are an extremely important source of advocacy, support, and adoption of new programs" (p. 45). In order to be effective advocates, this group has to have a clear understanding of the PIN, i.e., computer use.

There are two reasons for such a suggestion. First, "[d]istrict administrators and other central office personnel such as coordinators and consultants spend large amounts of time at conferences and workshops within ongoing professional networks of communication among their peers" (Fullan, 1982, p. 44). Therefore, they are most likely to have access to the information needed for accomplishing the task of clarification.

Second, external consultants can be most effective in providing specific assistance in PIN clarification by working with a small group; one which is already somewhat knowledgeable about a PIN and which has decision making responsiblity for the general direction or content of change.

Therefore, direct involvement in the first step in policy analysis for the purpose of adoption (i.e., PIN clarification) should be limited to the chief administrator and key central personnel. Other staff with particular expertise (e.g., data processing, instructional uses, administrative applications) should be used as resources for this group.

What to consider. At the beginning of the policy analysis process, clarification should focus on the areas of computer use and the PIN clusters shown in Figure 2. Instructional use and personal/professional administrative and support service use are the computer uses that define the areas that typically occur in a district. The PINs that may exist relative to these uses fall into people, organizational, and technological clusters.

Figure 2

Computer Use/PIN Cluster Matrix

Computer Uses \ PIN Clusters	People	Organizational	Technological
Instructional CAI Problem solving Computer literacy/ Computer science			
Personal, professional, administrative, and support services Local District-wide management information			

In Figure 3 is a sample of the topics that might fall under each PIN cluster. Under the people cluster, topics concern affective or personal feelings, cognitive knowledge, skills, and social, interpersonal relationships. The organizational cluster includes topics which impinge on district management and coordination, such as, centralization versus decentralization of control, funding/resource allocation, planning/timelines and equitable access, use, and outcomes.

Figure 3

PIN Cluster Topics

People (individual and informal group PINs)

- affective, personal feelings of adequacy/inadequacy, fear of personal obsolescence,
- knowledge and skills regarding the operation of computers for specific purposes
- social, interpersonal relationships related to computer use

Organizational (management and coordination PINs)

- centralization vs. decentralization of control
- equity in access, use, and outcomes regarding computer use
- planning/timelines
- funding and resource allocation

Technological (computer use specific PINs)

- selection, maintenance, service, support
- equipment: central processing units, peripherals
- software: locally programmed, generic, task specific
- facilities: furniture, lighting, power, security of equipment and data

Technology with a capital T is such an obvious part of microcomputer use that sometimes people and organizational topics are not considered. In fact, there are also some other, more mundane, technological topics that should be considered in addition to hardware and software acquisition and quality, the typical technological topics of uppermost interest. These other technological topics include facilities (rooms, power, lighting, air conditioning, furniture), security of equipment, software, and data, related maintenance, and service and support (product support and personnel support such as staff development and inservice).

There are also a variety of sub-topics under the computer use areas. Figure 4 shows some of the topics that fall under instructional use, and personal, professional, administrative and support service use. Computer use depends on software. There

Figure 4

Computer Use Areas and Topics

Instructional Use

- Comuter assisted instruction using software for drill and practice, tutorial, and simulation
- Problem solving in content areas using software for word processing, data base management, spreadsheet applications, graphics, and programming
- Computer literacy/computer science

Administrative and Support Service Use

- Local use (confined to individual buildings or departments) and District-wide management information use (which assumes the sharing of data across site and potentially with external agencies); specific local and district-wide uses may fall under topics like:

  Student records: enrollment, daily/period attendance, immunization, scheduling, grades and process reporting, test scoring

  Office applications: report writing and other word processing, calendar scheduling, student activity accounting, inventory

  Special support uses: print shop ordering, curriculum materials center booking, personnel grievance data, teacher/substitute information, financial forecasting, maintenance, work order record keeping, transportation routing, on-line cash registers, enrollment projections

are essentially three kinds of programs. One kind covers programming languages that can be used to create other programs to do specific tasks (e.g., BASIC, Pascal, COBOL, LOGO, Fortran, GraphForth). Another kind of program is the generic program that addresses a particular application but does so in a general way (e.g., word processing, data base management, spreadsheet calculation). A third kind of program is very specific to a particular task (e.g., accounting, scheduling, drill and practice).

Under instructional uses are included (1) the use of special software for computer-assisted instruction (CAI), i.e., drill and practice, tutorials and simulations; (2) the use of generic software like word processing, data base management, spreadsheets and programming languages for problem solving in many different content areas; and (3) teaching about computers, which is often called computer literacy or, if it is career preparation, computer science.

Under administrative and support services use comes many generic and specific software packages useful for local applications or district-wide management information use. The two major differences between local and district-wide uses are that district-wide uses typically require more sophisticated programs and such use infers the need for compatibaility in hardware and software or at least in the file structure of data.

Personal, professional administrative and support service use includes student records (e.g., enrollment, daily/period attendance, immunization, scheduling, grades and progress reporting, test scoring), office applications (e.g., word processing, calendar scheduling, student activity accounting, inventory), and support services (e.g., print shop ordering, curriculum materials center booking, personnel grievance data, teacher/substitute information, financial forecasting, maintenance work order record keeping, automated transportation routing, food service inventory, enrollment projections).

Of course, how these topics are manifested as PINs will vary from district to district. In order to describe a PIN as it exists, some "flesh" has to be added to the "bones" represented by the topics as they appear in Figures 3 and 4. The purpose of the initial clarification of PINs is to provide an impressionistic picture of PIN clusters related to the areas of computer use. Additional clarity will be attained when policy analysis techniques are used to generate alternatives and to plan implementation.

In defining computer use, the clarification step can help district administrators get an impressionistic picture of the PINs. For example, several kinds of people, including students, teachers, and parents, may have PINs related to instructional uses. That is, individually and in groups they potentially have problems-issues-needs that are related to personal feelings, knowledge, skills, and interpersonal relationships. A situation may exist when parents raise the issue of student computer literacy. Their assumption is that students have a need to learn about computers. The problem is that teachers do not have the knowledge and skills to teach this topic. Therefore, they feel inadequate and can easily get defensive when confronted with such demands. From an organizational perspective, it may be the case that decentralization is occuring as individual schools find the funds and resources to offer computer literacy. A problem of inequity is therefore arising in the district. In addition, the maintenance and support of the equipment being purchased is becoming an issue. The point of this example is to show that PINS in one cluster can be linked to those in other clusters.

One way to gain information about potential PINs is to have knowledgeable people in the district develop position papers addressing each cell in the computer use/PIN cluster matrix in Figure 2. From these papers a three-point summary can be drawn focusing on (1) things that are not now PINs, (2) those things that are PINs, and (3) those things that are unknown.

Question Development

By closely examining those items that are PINs, or that are unknown, a set of questions can be formulated to focus the policy analysis. For example, typically of high concern to districts are policy issues regarding curriculum impact, courseware development and evaluation, teacher training, and equity (Rampy, White and Rockman, 1983; Rockman, 1984; Rockman, White and Rampy, 1983). These are represented in the example given in the last

section regarding intertwined PINs. They might be reformulated into the following series of questions:

- How should we define computer literacy in our school district?
- What knowledge and skills should our teachers have in order to teach computer literacy?
- How can we insure that all students receive their fair share of computer literacy training?
- What hardware and software do we need to provide a computer literacy program?
- How can an image of a district commitment to computer literacy be presented while maintaining local building flexibility in the actual provision of instruction?

There are, of course, many other questions subsumed by these four. And, different districts will generate different sets of questions. Embodied in the questions should be the constraints that the superintendent and key staff feel that the district is working under. For example, in many districts it is essential to balance a district-wide curriculum which demonstrates a district commitment to computer use with local building flexibility in implementing the curriculum. Such a constraint is reflected in the last question in the above list.

The important point is that the supervisor and key staff should be the ones who generate this initial set of general questions because in so doing they provide direction to other staff regarding the important PINs. And, they thus help to insure that they will receive information from subsequent steps of the policy analysis process that is meaningful to them in setting the direction and content of change.

Data Collection, Analysis and Synthesis

The actual task of designing and implementing data collection, analysis, and synthesis procedures will most likely be delegated to school district personnel (e.g., a district evaluation unit) or to an outside consultant. The specific procedures used will depend on the nature of the question(s)

addressed and the resources available. For example, a curriculum division person may be given responsibility for pulling together a task force to address the questions listed earlier. The task force may do its own content analysis of computer literacy curricula from other districts.

Based on this content analysis, the task force may generate a variety of patterns. These may be shared with other teachers and administrators in the district to gain input on (1) preferences for a particular pattern, and (2) knowledge and skill training needed to implement a given pattern. Once this input is collected and analyzed, a technical expert might be called in to identify hardware and software requirements related to each pattern. This information would then be synthesized into adoption alternatives.

Identification of Alternative Policy Options and Their Implications

Because policy setting is a social process, it is important to maintain open communication all during the policy analysis process, so that people know what is happening and why. This will assure them that their points of view are being considered, and they will know what to expect from the adoption process. It might be worthwhile to circulate alternatives and/or hold an open meeting to discuss them before decisions are made as is suggested in the policy setting steps on pages 5 and 6. This will set the stage for planning the implementation of those adoption alternatives which are selected.

In discussing the essential characteristics of the adoption phase of planning change, Fullan (1982) states

> it is the <u>quality</u> of the planning process which is essential: the degree to which a problem-solving approach at the adoption stage is combined with planning ahead for implementation (Miles, 1980). The quality of the adoption process already sets the stage for subsequent success or failure (p. 64).

Fullan goes on to discuss the role of participation:

> Indeed, at the adoption phase sheer quantity in participatory planning can be harmful if it involves wasted time, disagreement, unclear needs assessment, frustrating meetings, and so on, without those involved having any program involvements to show for their efforts. If the planning process (regardless of whether it is participatory) results in a specific, high-quality, needed innovation, or in a broad-based flexible program whose general direction is compatible with the needs of the district, it will have been a sufficient start. More important for change in practice, however, is <u>implementation-level participation</u> in which decisions are made about what does work and what does not (p. 65).

Adoption is most successful when the chief district officer and key administrators are directly involved. As a result of the policy analysis procedures just illustrated, adoption alternatives can be brought to this group for decisions. The options presented might include policy statements and implementation implications.

<u>Policy statements</u>. The Education Policies Service of the National School Boards Association has a series of illustrative policy statements covering many different topics. A policy statement patterned after them may be as follows:

Computer Literacy

> The Board recognizes the importance of developing computer literacy among the students of the district and the instructional staff. In order to provide a comprehensive, equitable, and appropriate computer literacy program in the district, the Board authorizes the administration to:
>
> 1. establish a district-wide computer literacy curriculum that allows for local building flexibility
> 2. provide the necessary staff development so that teachers and others are able to implement the curriculum
> 3. coordinate the selection and purchase of hardware and software in a cost-effective way, consistent with district procedures of fiscal accounting and reporting
> 4. monitor the implementation of the curriculum to insure the equitable distribution of learning opportunities and outcomes.

Alternative statements could be developed to reflect the options generated as a result of the data collection step.

Implementation implications. Detailed implementation planning is not the role of policy analysis. However, understanding the major elements of interventions "should help planners and policy makers in developing and maintaining an overview perspective of the total process" (Hall and Hord, n.d., p. 27). One major element which follows policy setting is the general description of a "game plan." A game plan should contain sufficient detail to guide subsequent elaboration of the components listed in Figure 5. However, the detailed rules, guidelines, strategies, actions, and tactics embodied in the components should be left to those who, for example, will be directly involved in implementating the four sub-parts of the above policy statement on computer literacy.

However, superintendent and key staff support remains critical. As Fullan (1983) states, "[i]ndividual teachers and single schools can bring about change without support of central administrators, but district-wide change will not happen" (p. 65). The history of innovation in a district provides the backdrop for current change. Staff soon come to realize that "unless central administrators demonstrate through action that they should change" (Fullan, 1983, p. 65), they need not take change seriously. Fullan summarizes this situation as follows:

> The basic point, however, is that the chief executive officer and other key central administrators set the conditions for implementation to the extent that they show specific forms of support and active knowledge and understanding of the realities of attempting to put a change into practice. To state it most forcefully, the administrator affects the quality of implementation to the extent that he or she understands and helps to manage the set of factors and the processes described in this chapter (p. 65).

Those factors and processes include the adoption process, staff development, board and community involvement, timeline, information systems and so on.

Figure 5

Game Plan Components

These components consist of six functional clusters of innovation- related interventions.

1. Supportive organizational arrangements (e.g., administrative rules and guidelines, logistical and scheduling activities, staff, funds, roles, facilities, materials, and other resources needed to establish and maintain the innovation).

2. Training: formal, structured and pre-planned activities taken to develop positive attitudes, knowledge, and skills.

3. Consultation and reinforcement: idiosyncratic, problem-specific actions targeted at an individual or small group taken to encourage and to assist individuals solve implementation problems.

4. Monitoring and evaluation: actions taken to gather, analyze, and report data about the implementation and outcomes of a change effort.

5. External communication: actions taken to inform and/or gain support of those external to the users.

6. Dissemination: actions taken to broadcast information and materials related to the innovation so that others will be encouraged to adopt it.

(Based on Hall and Hord, n.d., Figure 1.)

Conclusions

Policy analysis is a vehicle through which a superintendent and key staff can gain knowledge for decision-making relative to an innovation like computer use. Through policy analysis they can come to understand the meaning of computer use in terms of the problems-issues-needs surrounding it in their own district. As a result, they can be in a position to actively set the direction and content of such a change. Policy analysis, therefore, can form the basis of a systematic problem-solving approach to the formulation of policy options and the subsequent,

initial planning for implementation. Direct involvement in this stage of the change process can show specific support for "and active knowledge and understanding of the realities of attempting to put a change into practice" (Fullan, 1982, p. 65). In doing so, the superintendent and key staff can take an important step in insuring the ultimate success of a change like district-wide computer use.

REFERENCES

Christen, K. & Gladstone, P. (1983, November/December). EL's third annual survey of the states. Electronic Learning, 37-54.

Education Commission of the States. (1983, September). A 50-state survey of initiatives in science, mathematics, and computer education (No. SM-83-1). Denver, CO: Author.

Fullan, M. (1982). The meaning of educational change. Toronto, Ontario: The Ontario Institute for Studies in Education Press.

GDN Newsletter (1983, October). Professional decision-making: A new appraoch. Morgantown, WV: Center for Guided Design, 3(2).

Hall, G. E. & Hord, S. M. (n.d.). A framework for analyzing what change facilitators do: The intervention taxonomy. Austin, TX: Research and Development Center for Teacher Education.

House, P. W. (1982). The art of public policy analysis. Beverly Hills, CA: Sage Publications.

Lindblom, C. E. (1959). The science of "muddling through." Public Administration Review, 19, 79-88.

MacRae, D., Jr. (1979, September/October). Concepts and methods of policy analysis. Society, 16(6), 17-23.

Quade, E. S. (1977). Analysis of public decisions. In S. S. Nagel (Ed.), Policy Studies Review Annual (Vol. 1) (pp. 18-29). Beverly Hills, CA: Sage Publications.

Rampy, L., White, D. J. D., & Rockman, S. (1983, August). Computers in the schools: 21 critical issues for policy decisions. Educational Technology, 20-23.

Rockman, S. (1984, April). Generating policy issues for computers in schools. A paper presented at the Annual meeting of the American Educational Research Association, New Orleans, LA.

Rockman, S., White, D. J. D., & Rampy, L. (1983, November). Computers in the schools: The need for policy and action. Educational Technology, 13-18.

Southeastern Regional Council for Educational Improvement. (1983, July). Schooling and technology, Vol. 1: State-level policy implications. Research Triangle Park, NC: Author.

Vaupel, J. W. (1977). Muddling through analytically. In S. S. Nagel (Ed.), Policy Studies Review Annual (Vol. 1) (pp. 44-66). Beverly Hills, CA: Sage Publications.

Wolfe, L. G. (1982). Policy is power (Keys to School Boardmanship Series). Portland, OR: Northwest Regional Educational Laboratory.